

## BOOK REVIEWS

COMMON TREES OF THE HIGHVELD, by R. B. Drummond and K. Coates Palgrave, with pp. 99, and 54 colour plates. Salisbury: Longman Rhodesia (Pty) Ltd Rh \$2,50 ( $\pm$ R2,50).

Fifty four common trees of the Rhodesian Highveld are enumerated in this book, each being illustrated by a half tone photograph and a colour plate depicting the leaves, flowers and fruits. As the authors point out, only the commonest species are dealt with from the area which they define as highveld, so in order to render the book as complete as possible a list of the most important species that had to be omitted has also been included.

One minor criticism is that the title may seem misleading to South African readers, who are accustomed to using the term "highveld" in a somewhat different geographical and ecological connotation. At the risk of being accused of undue provincialism, it did seem to me that "Common trees of the Rhodesian Highveld" might have been a more suitable title.

An alphabetical arrangement of families provides the basic plan of the book. Within the families, the species are arranged alphabetically, under their scientific names. Full author citations are given as well as important synonyms and common names in English, Shona and Ndebele.

The descriptions are brief, relying for the most part on the excellent colour plates to provide diagnostic details. It is a real pleasure to see Olive Coates Palgrave's beautiful water colour paintings reproduced again. They originally appeared in *Trees of Central Africa*, now out of print. Despite considerable reduction in the present publication, they have lost very little detail and are extremely well reproduced. Notes on distribution, folk lore, the uses of timbers, fruits, bark etc., and many other interesting observations on the biology of each species, fills the remainder of the text.

*Common Trees of the Highveld* meets all the requirements of a field handbook: it is light, of handy dimensions (140 mm  $\times$  210 mm) and is printed on relatively tough paper, which should stand a reasonable amount of wear and tear. There is a good general index and an index to the vernacular names. At Rh \$2,50 ( $\pm$ R2,50), this book is amazingly good value for money. I sincerely hope it is the forerunner of many similar publications on Rhodesian trees.

J. P. ROURKE

TREES OF THE KRUGER NATIONAL PARK, VOL. 1, by P. van Wyk, with pp. XIV + 284, 99 full page colour plates. Cape Town: Purnell & Sons, 1972. R17,50.

How gratifying it is to know that animals are not the only inhabitants of the Kruger National Park and how fortunate it is that the flora of this great reserve should have an advocate as learned and eloquent as Mr. P. van Wyk. In introducing *Trees of the Kruger National Park*, of which Volume 1 is reviewed here, the author first presents a general picture of the area under consideration from climatic, geographical and geological viewpoints and also an outline of the principal vegetation zones supplemented by a vegetation map and a generous selection of colour photographs.

The major portion of the text is taken up with a systematic account of the tree species occurring within the boundaries of the park. These are arranged in numerical order, according to the National List of Trees, which in turn follows the Engler system. While the National Numbers are prominently indicated, no author citations are given after the binomials. This seems an unfortunate omission in a work of such high quality. For each species there is a statement of its known distribution within South Africa, beyond our borders and, more specifically, within the Kruger Park itself, backed up by a small distribution map. These maps are the only aspect of the whole volume that do not match up to the high standards set in the rest of the work. They tend to be more misleading than helpful. The small, inadequate dots used to indicate distributions are very difficult to pick out and one cannot help feeling that shading (as is used in a few instances) would have been more effective. A detailed description in a leisurely, expansive style then follows. The paragraphs dealing with the ecology and biology of each species are mines of information. There are notes on flowering and fruiting times, the texture and colour of the leaves in spring and autumn, the dietary preferences of browsing animals, the birds and other creatures attracted to the fruits, resistance to drought

and veldburning, germination of the seeds, growth rates, folklore, medicinal and economic properties and a good many other observations on the biology of each species. Here we have an assemblage of personal observations wrested from nature by the author over more than a decade. It is this vital data, so rarely written down, that elevates Mr. van Wyk's remarkable book to the rank of a highly original piece of biological research. It is indeed a sorry state that this type of data is so rarely allowed to infiltrate the pages of lifeless descriptions and sterile prose that so often characterise our monographs and floras.

Numerically, the legumes—here divided into 3 distinct families, Mimosaceae, Caesalpinaceae and Papilionaceae, occupy the bulk of the first volume. They are, in fact, the most important arborescent plant group discussed, comprising 30% of the total of about 200 plant species which attain the stature of trees in the Kruger Park.

No one can doubt that the colour photographs are the most outstanding feature of this book. These show a mature specimen of each species in its natural habitat with smaller photographs providing details of the bark, flowers and fruits. Endless patience must have been expended in assembling this collection of detailed portraits of the 95 species discussed. Not one plate in the reviewer's copy was out of register or showed any other defects in printing. A clear, bold typeface, together with a very pleasing layout, make this book a delight to use. There are relatively few misprints, and errors in translation such as there are (pg. 204, the family Papilionaceae is referred to as "this genus") are trivial and cannot be considered serious irritations. In short, this book gives the reader great satisfaction.

Every person who has the remotest claim to being a botanist should possess this magnificent treatise, as well as its companion volume which we now eagerly await.

J. P. ROURKE

PRINCIPLES OF DISPERSAL IN HIGHER PLANTS by L. van der Pyl. Second edition, with pp. xi and 162 and 26 figures. Berlin-Heidelberg-New York: Springer-Verlag, 1972. US \$12.60.

This second edition of *Principles of dispersal in higher plants* differs only in very small details from the first edition which appeared in 1969.

The ecology (biology) of reproduction of the higher plants is a topic that has been neglected. Van der Pyl with his *Principles of pollination ecology* (together with K. Faegri) and the book under discussion puts the subject in its proper perspective and showed that it's a matter of great ecological, biological and evolutionary importance.

*Principles of dispersal in higher plants* emphasises the principles of dispersal and how certain mechanisms effectively promote the life of the plant in its natural habitat.

The book starts with a short introductory chapter and three short chapters on, respectively, *General terminology*, *The units of dispersal* and *The relation between flowers, seeds and fruit*. *The ecological dispersal classes, established on the basis of dispersing agents* is the subject of the fifth chapter (p. 19–77). The following dispersing agents are discussed in what the author considers as an evolutionary sequence: invertebrates, fishes, reptiles, birds, mammals, ants, wind, water, transport on the outside of animals, dispersal by the plant itself and dispersal by weight only.

The concept of limitation of dispersal and the phenomenon that the same species may have different means of dispersal is set out in chapter six (p. 78–96). To understand dispersal it must be studied in the contexture of the plant community and to illustrate this point dispersal in deserts and rain forests and the dispersal of epiphytes and island floras are discussed. For dispersal to be effective the diaspores must be established and in a short chapter fixation, vivipary and germination as aspects of establishment are treated.

*The evolution of dispersal organs* is the subject matter of chapter eight (p. 105–125). The organs of dispersal in flowering plants are discussed from a special functional angle, namely the shift of function in spores, seeds and fruits. The discussion starts with the isoporous pteridophytes and ends with the angiosperms. The seed of the primitive gymnosperms and angiosperms were probably distributed by reptiles and the evolution of the dispersal organs can only be understood if the evolution of the dispersing agents are understood.

In the ninth chapter the concepts developed in the book are tested on the Leguminosae. The family is considered well suited to an inquiry into the ecology behind seeds and fruits, isolated from other processes, because its flowers are always entomophilous and because its

ovaries are simple and uniform. In the last chapter *Man and his plants in relation to dispersal* is discussed.

The book is well documented with an extensive list of references. The publications of Stopp and Leistner who made important contributions to dispersal ecology in South Africa, are listed. Zohary's *Plant life of Palestine* is not in the list, but is mentioned in the text. The publications of R. Marloth (e.g. the parachutes of *Leucadendron argenteum*) and A. V. Duthie (distribution of megaspores of Isoetes by earthworms) are not mentioned. The two indices cover the topics discussed and the plants mentioned in the text very well.

This book is indispensable for anyone studying, or doing research on, the dispersal of higher plants. Very little is known about the dispersal of plants in South Africa and many of the concepts put forward in this book must still be tested out in the South African flora. By so doing the South African flora will be better understood and a significant contribution is sure to be made to world botany.

The book makes a good impression. It is well-bound and the subject matter is well presented.

P. G. JORDAAN

**DIE VEGETATION DES MECSEKGEBIRGES UND SEINER UMGEBUNG** deur A. O. Horvát, met p. 376, 111 figure, 24 kleurfoto's en 'n vegetasiekaart in kleur. Budapest: Akadémiai Kiadó, 1972. Prys \$15.60.

Die boek is die resultaat van 'n intensiewe studie oor 'n periode van 30 jaar van die plantegroei van die Mecsekberge en sy omgewing in die suidooste van Hongarye.

Die resultate is ingedeel in ag hoofstukke. Na 'n algemene geografiese en 'n algemene plantgeografiese skets van die studieterrrein word 'n lang hoofstuk (p. 63–215) gewy aan die senologiese ondersoek van die gemeenskappe. Daarna word die resultate van die analise van die woudbodem weergegee en mikroklimaatondersoeke in verskillende gemeenskappe bespreek. In die sesde hoofstuk word die resultate wat van belang vir die kartering van die plantegroei is, bespreek en daarna die antropogene kultuurvegetasie en die woudtipes.

Om die inhoud van die boek te verstaan moet die leser ingelig wees oor die sintaksonomiese terminologie soos gangbaar in Europa.

Talle kleurrike plantgemeenskappe kan onderskei word waarvan sommige 'n midde-europese en ander 'n submediterreense, kontinentale of balkanse voorkoms het. Die flora is ryk aan mediterreense en oos-europese elemente. Woudgemeenskappe waarin *Quercus* soorte 'n belangrike rol speel, oorheers.

Die boek is goed gedokumenteerd en bevat 'n lang lys verwysings (p. 323–336). Dit is voorsien met nege registers—vir figure, kleurfoto's, tabelle, soorte van die woudgemeenskappe, soorte van die kruidgemeenskappe, name van die plantgemeenskappe, name van die soorte, name van persone en 'n baie kort onderwerpregister.

Die skrywer het 'n publikasie probeer lewer waarin plantgeografe, geografe, grondkundiges, klimatoloë, geoloë, pedagoë, bosboukundiges en agronome sodanige kennis oor die Mecsekberge en sy omgewing wat elkeen vir sy vakgebied nodig het, kan vind. Vir plantkundiges in Suid-Afrika sal die werk as 'n model kan dien, maar dit is tegelykertyd 'n openbaring dat aan sekere aspekte van die plantsosiologie en plantgeografie hier nog weinig aandag gegee is.

Die boek maak 'n netjiese indruk en is mooi gebind en goed versorg. Die figure, kleurfoto's en die veelkleurige plantegroeikaart is duidelik en vul die teks mooi aan.

P. G. JORDAAN